What is claimed is:

1. In a self-organizing network including a plurality of kindred nodes, a method of communicating a data packet from a source node to a destination node remote from the source node comprising the steps of:

transmitting a test packet from the source node to at least some of the plurality of kindred nodes including the destination node;

determining a number of hops required to send the test packet from the source node to the destination node;

changing the transmission power of the source node to adjust the number of hops required to send the test packet from the source node to the destination node to an optimum number; and

transmitting the data packet from the source node to the destination node via the optimum number of hops.

2. A method as claimed in claim 1 wherein the step of changing the transmission power includes increasing the transmission power in steps to adjust the number of hops to the optimum number.

3. A method as claimed in claim 1 wherein the step of changing the transmission power of the source node to adjust the number of hops required to send the test packet from the source node to the destination node to the optimum number includes transmitting directly to 2% to 5% of the kindred nodes in the self-organizing network.

4. A method as claimed in claim 1 wherein the self-organizing network further includes at least one hub node with a hub transmission frequency different than kindred transmission frequencies employed between kindred nodes and the step of transmitting the data packet from the source node to the destination node includes changing the transmission frequency from a kindred transmission frequency to a hub transmission frequency.

5. A method as claimed in claim 4 including in addition a step of determining a traffic load prior to the step of transmitting the data packet from the source node to the destination node and performing the step of changing the transmission frequency from the kindred transmission frequency to the hub transmission frequency when the traffic load is high.

6. A method as claimed in claim 1 including in addition a step of assigning a priority to each data packet and performing the step of transmitting the data packet from the source node to the destination node on higher priority data packets first.

7. A method as claimed in claim 6 including in addition steps of assigning a priority to each data packet and incorporating a user policy of transmitting only packets with a priority above a selected priority.

8. In a self-organizing network including a plurality of kindred nodes, a method of communicating a data packet from a source node to a destination node remote from the source node comprising the steps of:

transmitting a test packet from the source node to at least some of the plurality of kindred nodes at a known trasmission power;

adjusting the transmission power until the destination node acknowledges receipt of the test packet;

determining a number of kindred nodes which received the transmission;

adjusting the transmission power of the source node until the number of kindred nodes plus two additional kindred nodes receive the transmission; and

transmitting the data packet from the source node to

the destination node via at least one of the plurality of kindred nodes.

9. A method as claimed in claim 8 wherein an optimum number of nodes is 2% to 5% of the kindred nodes in the self-organizing network.

10. A method as claimed in claim 8 wherein the step of transmitting the data packet from the source node to the destination node via at least one of the plurality of kindred nodes includes in addition steps of:

transmitting directly from a first kindred node to a second kindred node a digital message simultaneously at multiple rates to produce a fractal;

receiving the fractal at the second kindred node and accepting a fastest part of the fractal that achieves a desired received signal quality;

transmitting from the second kindred node a "received" message back to the first kindred node; and

transmitting the data packet from the first kindred node to the second kindred node at a rate equal to the fastest part of the fractal that achieves the desired received signal quality.

11. In a self-organizing network including a plurality of kindred nodes, a method of communicating data packets from a source node to destination nodes remote from the source node comprising the steps of:

within the self-organizing network, assigning a priority to each data packet;

incorporating in the source node a user policy of retransmitting only packets with a priority above a selected priority;

receiving from kindred nodes in the data packets with a designated priority to be retransmitted; and

retransmitting only data packets with a priority above the selected priority from the source node to destination nodes.

12. A method as claimed in claim 11 including in addition steps of determining the number of hops required to send each data packet from the source node to a destination node and changing a transmission power of the source node to reduce the number of hops required to send each data packet from the source node to the destination node.

13. In a self-organizing network including a plurality of kindred nodes operating at a kindred transmission frequency and at least one hub node operating at one of the kindred transmission frequency and a hub transmission frequency different than the kindred transmission frequency, a method of communicating a data packet from a source node to a destination node remote from the source node comprising the steps of:

determining traffic load within the self-organizing network;

providing a data packet to be transmitted to a destination node when the traffic load is high;

changing the kindred transmission frequency of the source node from the kindred transmission frequency to the hub transmission frequency; and

transmitting the data packet from the source node to the destination node via the hub node to reduce one of delay and hop count.

14. A method as claimed in claim 13 including in addition steps of determining the number of hops required to send the data packet from the source node to the destination node and changing the transmission power of the source node to reduce the number of hops required to send the data packet from the source node to the destination node.

15. In a self-organizing network including a plurality of kindred nodes, a method of communicating data packets from source nodes to destination nodes remote from the source nodes comprising the steps of:

including in each data packet information and packet handling commands;

receiving from kindred nodes in the self-organizing network at source nodes data packets with the information and packet handling commands;

adjusting operation of the source nodes in a way that allows the self-organizing network to be self-organizing, self-configuring, and self-healing; and

retransmitting data packets from the source nodes to the destination nodes with a minimum of hops and delay.

16. A method as claimed in claim 15 wherein the step of adjusting operation of the source nodes in a way that allows the network to be self-organizing, self-configuring, and self-healing includes in addition steps of:

transmitting directly from a first kindred node to a second kindred node a digital message simultaneously at multiple rates to produce a fractal;

receiving the fractal at the second kindred node and accepting a fastest part of the fractal that achieves a

desired received signal quality;

transmitting from the second kindred node a "received" message back to the first kindred node; and

transmitting the data packet from the first kindred node to the second kindred node at a rate equal to the fastest part of the fractal that achieves the desired received signal quality.

17. A self-organizing network comprising a plurality of kindred nodes with each kindred node including a control for altering transmission power to change a transmission path.

18. A self-organizing network as claimed in claim 17 wherein each of the plurality of kindred nodes includes a decision engine for adjusting operation of a source node of the plurality of kindred nodes in a way that allows the network to be self-organizing, self-configuring, and self-healing.

19. A self-organizing network as claimed in claim 18 wherein each data packet includes priority information and the decision engine includes user policy controls for retransmitting only data packets above a selected priority.

20. A self-organizing network as claimed in claim 18 wherein the decision engine includes controls for switching each of the plurality of kindred nodes between an end user node, a long range hub node, a medium range hub node, and a short range hub node.

21. A self-organizing network as claimed in claim 17 wherein each of the kindred nodes includes a kindred frequency of operation and the network further includes at least one hub node with a hub transmission frequency different than kindred transmission frequencies, and each of the plurality of kindred nodes includes frequency changing controls for changing operating frequency from the kindred transmission frequency to the hub transmission frequency.

22. A self-organizing network as claimed in claim 17 wherein at least one of the kindred nodes includes a fractal modulator and at least one of the kindred nodes includes a fractal demodulator.